

Third lab: Microservices using Hazelcast Distributed Map

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Github: https://github.com/khristinakokolus/microservices_architecture.git

All code is in the *micro_hazelcast* branch.

Sending 10 POST requests with 10 messages.

Facade service console:

```
* Running on http://127.0.0.1:8080/ (Press CTRL+C to quit)
127.0.0.1 - - [22/Apr/2022 23:15:27] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:28] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:28] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:29] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:30] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:31] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:32] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:33] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:34] "POST /facade_service HTTP/1.1" 200 -
127.0.0.1 - - [22/Apr/2022 23:15:35] "POST /facade_service HTTP/1.1" 200 -
```

Launched 3 logging services.

First logging service console:

```
2022-04-22 23:15:12 INFO      * Running on http://127.0.0.1:8082/ (Press CTRL+C to quit)
2022-04-22 23:15:28 INFO      {'message': 'msg2', 'message_uuid': '9980fe8b-2155-4a37-bf71-87bd7bd9d78d'}
2022-04-22 23:15:28 INFO      127.0.0.1 - - [22/Apr/2022 23:15:28] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:31 INFO      {'message': 'msg6', 'message_uuid': '8c048ba5-be55-48db-b160-d57470299bc9'}
2022-04-22 23:15:31 INFO      127.0.0.1 - - [22/Apr/2022 23:15:31] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:33 INFO      {'message': 'msg8', 'message_uuid': 'f67df9c1-1f7d-4d05-b3d2-50340ad9b092'}
2022-04-22 23:15:33 INFO      127.0.0.1 - - [22/Apr/2022 23:15:33] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:34 INFO      {'message': 'msg9', 'message_uuid': '472bd0fc-ade9-4487-ab95-90cfc830fa34'}
2022-04-22 23:15:34 INFO      127.0.0.1 - - [22/Apr/2022 23:15:34] "POST /logging_service HTTP/1.1" 200 -
```

Second logging service console:

```
2022-04-22 23:15:15 INFO      * Running on http://127.0.0.1:8083/ (Press CTRL+C to quit)
2022-04-22 23:15:28 INFO      {'message': 'msg3', 'message_uuid': '385324a4-23ce-49a7-aa15-4abded620456'}
2022-04-22 23:15:28 INFO      127.0.0.1 - - [22/Apr/2022 23:15:28] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:29 INFO      {'message': 'msg4', 'message_uuid': 'e3ddbef2-4ae5-47d3-8bed-56f7e096fee9'}
2022-04-22 23:15:29 INFO      127.0.0.1 - - [22/Apr/2022 23:15:29] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:30 INFO      {'message': 'msg5', 'message_uuid': 'babed7fe-a031-4d1c-8690-9ce707181d3a'}
2022-04-22 23:15:30 INFO      127.0.0.1 - - [22/Apr/2022 23:15:30] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:32 INFO      {'message': 'msg7', 'message_uuid': 'd253adc9-1882-40db-8635-37f68aa10fdc'}
2022-04-22 23:15:32 INFO      127.0.0.1 - - [22/Apr/2022 23:15:32] "POST /logging_service HTTP/1.1" 200 -
2022-04-22 23:15:35 INFO      {'message': 'msg10', 'message_uuid': '23f356a8-929d-422a-824c-4e7075b7b467'}
2022-04-22 23:15:35 INFO      127.0.0.1 - - [22/Apr/2022 23:15:35] "POST /logging_service HTTP/1.1" 200 -
```

Third logging service console:

```
2022-04-22 23:15:18 INFO      * Running on http://127.0.0.1:8084/ (Press CTRL+C to quit)
2022-04-22 23:15:27 INFO      {'message': 'msg1', 'message_uuid': '1064c697-0b24-4858-80f5-291ba2aa4896'}
2022-04-22 23:15:27 INFO      127.0.0.1 - - [22/Apr/2022 23:15:27] "POST /logging_service HTTP/1.1" 200 -
```

From here it can be seen that messages are randomly distributed among the nodes.

GET request output:

```
HTTP/1.0 200 OK
Content-Type: text/html; charset=utf-8
Content-Length: 102
Server: Werkzeug/2.0.2 Python/3.9.7
Date: Fri, 22 Apr 2022 20:16:38 GMT

[msg10, msg2, msg9, msg3, msg8, msg1, msg6, msg7, msg5, msg4]: messages-service is not implemented yet
Response file saved.
> 2022-04-22T231639.200.html

Response code: 200 (OK); Time: 1192ms; Content length: 102 bytes
```

Facade service GET request:

```
127.0.0.1 - - [22/Apr/2022 23:16:38] "GET /facade_service HTTP/1.1" 200 -
```

Logging service GET request:

```
2022-04-22 23:16:38 INFO      127.0.0.1 - - [22/Apr/2022 23:16:38] "GET /logging_service HTTP/1.1" 200 -
```

Messages service GET request:

```
* Running on http://127.0.0.1:8081/ (Press CTRL+C to quit)
127.0.0.1 - - [22/Apr/2022 23:16:38] "GET /message_service HTTP/1.1" 200 -
```

When shutting down one of the logging services and facade service randomly chose this one, the output looks like:

```
HTTP/1.0 200 OK
Content-Type: text/html; charset=utf-8
Content-Length: 14
Server: Werkzeug/2.0.2 Python/3.9.7
Date: Fri, 22 Apr 2022 20:18:45 GMT

Error occurred
Response file saved.
> 2022-04-22T231846.200.html

Response code: 200 (OK); Time: 1029ms; Content length: 14 bytes
```

But if it chose working one the output looks like:

```
HTTP/1.0 200 OK
Content-Type: text/html; charset=utf-8
Content-Length: 102
Server: Werkzeug/2.0.2 Python/3.9.7
Date: Fri, 22 Apr 2022 20:18:59 GMT

[msg10, msg2, msg9, msg3, msg8, msg1, msg6, msg7, msg5, msg4]: messages-service is not implemented yet
Response file saved.
> 2022-04-22T231900.200.html

Response code: 200 (OK); Time: 1064ms; Content length: 102 bytes
```